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Public Private Partnership (PPP) Review

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Foreword

The Public Private Partnership (PPP) model has thus far been used on four infrastructure projects in Finland. These projects are main road 4 Järvenpää–Lahti (contract expired and project handed over to client), E18 Muurla–Lohja (operational phase), E18 Koskenkylä-Kotka (construction phase) and the Ostrobothnian railway line between Kokkola and Ylivieska (procurement process with the PPP model terminated, implemented with government funding).

The aim of this review was to compare the above mentioned PPP projects, to evaluate the procurement model and give recommendations for model development. The Finnish Transport Agency will decide on implementation of the recommendations at a later stage.

The conclusions presented in the report are based on interviews with key persons of 22 projects and on the tender and contract documentation of the projects.

The review has been drafted by the consulting firm KPMG Oy Ab under the direction of Director Kai Rintala and Analyst Sirpa Smids. The work has been supervised by a group consisting of the Chairman, Director Pekka Jokela (until June 2013) and thereafter Mirja Noukka, Development Manager Seppo O. Mäkinen, Legal Counsel Anna Myllylä and Project Manager Lars Westermark from the Finnish Transport Agency, Senior Adviser Tuomo Suvanto from the Ministry of Transport and Communications and Director Matti Vehviläinen from the Regional Centre for Economic Development, Transport and the Environment for Southwest Finland.

Helsinki, September 2013

Finnish Transport Agency

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Executive summary

This assignment	■ The Public Private Partnership (PPP) model has thus far been used on four infrastructure projects in Finland. These projects are Highway 4 Järvenpää-Lahti (contract expired), E18 Muurla-Lohja (operational phase), E18 Koskenkylä-Kotka (construction phase) and Kokkola-Ylivieska rail project (procurement aborted) ■ The Transport Policy Report published in 2012 proposed the limited use of PPP in large infrastructure developments. **The purpose of this assignment was, focusing on selected key issues, to capture the experiences from past PPP projects in order to assess the effectiveness of the procurement model and to make recommendations for its further development** ■ The conclusions presented in this report are based on 22 interviews with key stakeholders as well as the analysis of procurement and contract documentation ■ The analysis in this report focuses on the procurement documentation, the bidding and negotiation phase, the construction phase, the operational phase and hand-back. In addition, the analysis places the spotlight specifically on risk allocation, payment mechanism and financing solutions
Procurement documentation	■ The rationale for the use of PPP is to enable innovation through the use of output specification, thus contributing to the improved productivity of the industry. This aim has largely been achieved. On E18 Muurla-Lohja, the output specification for traffic control and safety of the tunnels could not be unambiguously interpreted by the contracting parties. This led to increased use of input specification on E18 Koskenkylä-Kotka. **The output specification has a key role in realising the benefits of PPP.** On road projects, this means specifying the outputs within the boundaries set by planning decisions and thus enabling innovations. The experiences on PPP projects have been good, especially in terms of improved optimisation of earth-moving and phasing of superstructure construction ■ The procurement documentation is seen to have been of high quality by the interviewees. However, changes to the documentation, especially with respect to risk allocation, have been necessary in order to secure bankability. These changes have been negotiated in the procurement process after the preferred bidder has been chosen. **The client should be better able to anticipate the requirements of the project financing banks in the procurement and contractual documentation before selecting the preferred bidder** ■ The budgets for all four PPP projects have been fixed and publicly known before the procurement processes have started. The bidding competition has in addition taken place in a setting where the output specification (quality) and contract duration have been fixed. This has resulted in affordability challenges. **In order to streamline the procurement process, the client could consider fixing the affordability envelope and output specification up front and using contract (construction and operation) duration as a bid evaluation criteria.** The use of output specification is seen to call for a at least a 15-year operational period ■ The procurement timelines for Kokkola-Ylivieska and E18 Koskenkylä-Kotka were partially overlapping. In a country the size of Finland this resulted in resource shortages contributing to the number of bids received. **The procurement of PPP projects calls for improved coordination in the future**

Executive summary

Bidding and negotiation phase	■ The bidding and negotiation phase in the Finnish PPP projects has been very short in comparison to international benchmarks. **The client has been extremely successful in its systematic approach to organising the bidding competition and concluding the negotiations. The same approach should be applied on future projects** ■ The bidders have proposed numerous changes during the bidding phase, especially on risk allocation and technical requirements. The client has, however, not taken these into consideration to the extent desired by the bidders in refining the procurement and contractual documentation. Most of the proposed amendments have come from the financing banks and not been taken into account until preferred bidder negotiations. **In order to take advantage of competitive tension, the client should take the bidders' critical requirements into account whilst more than one bidder is involved in the procurement process.** The client has found it challenging to identify the genuinely critical requirements ■ The negotiations between the client and the bidders have been perceived by the bidders to be confrontational as opposed to being sessions for joint problem-solving. **The client has an opportunity to make use of the best practices of alliancing bringing the Finnish PPP negotiation practices closer to those used internationally.** Some tension in the negotiations is unavoidable due to their commercial nature
Construction phase	■ The construction phase for Highway 4 Järvenpää-Lahti and E18 Muurla-Lohja has ended**. The construction phase on both projects is deemed to have been approximately a year shorter than what the client originally anticipated with the PPP model let alone what it would have been if they had been procured traditionally.** This is one of the main achievements of PPP in Finland ■ E18 Koskenkylä-Kotka project is currently in construction and progressing to plan. This has also resulted in an improved working atmosphere in comparison to the previous project. **The private sector partner has obtained positive feedback from the client on its increased openness towards the client** ■ **A number of challenges were encountered during the construction phase of E18 Muurla-Lohja. These led to a slight delay in the completion of the project and partially damaging the relationship between the parties.** Possible causes to the challenges encountered include – The private sector bid was commercially very aggressive in an environment where civil engineering costs were rising above expectations. As a result, it became essential to seek cost-effectiveness in all aspects of the project – The client used a very demanding output specification for traffic control. The private sector did not understand the challenges involved with the traffic control system at the time of bidding and signing the contract
Operational phase	■ Out of the two PPP projects which have proceeded to the operational phase, Highway 4 Järvenpää-Lahti is considered to be a success story. **The active role the PPP company has played in collaborating with the local authorities to revitalise the local economy was highlighted by the interviewees** ■ The quality requirements for E18 Muurla-Lohja were defined primarily as outputs linked to the payment mechanism. This has caused some interpretation challenges**. The client and the private sector have prepared documentation on the interpretation of the payment mechanism.** These documents should be used on future PPP projects in seeking to simplify the payment mechanism

Executive summary

Hand-back	■ The preparations for the hand-back of Highway 4 Järvenpää–Lahti started three years before the contract was due to expire. The hand-back was a success. **The PPP company had rectified all the issues identified and fulfilled all the requirements set for the hand-back of the road at the time of the transfer.** The guidance drawn up during the hand-back process should be used on up-coming projects. A detailed ex-post evaluation on the hand-back should be undertaken for the benefit of future projects
Financing solution	■ The higher cost of project financing compared to public sector financing was a reoccurring theme in the interviews. **The potential avenues for reducing the cost of financing whilst retaining most of the benefits arising from efficient management of risk under PPP include** – **The Irish model:** the client funds approximately half of the project's capital costs directly during the construction phase as private finance is used of the other half. As a result, more affordable public sector financing and the PPP risk allocation are both being used – **The French model:** The client guarantees a proportion of the availability payment thus leaving approximately 70 percent of it protected. This allows the protected part of the payment to be financed at a cost close to public sector borrowing – **The Danish model:** the client refinances the project using public sector funds post construction. This brings more affordable financing to the project at the time most of the project risks have been passed in time ■ The above PPP models have been evaluated in connection with previous PPP projects and proven not to be adaptable to the Finnish context. However, the evaluation of the models should be continued
Risk allocation	■ There are **two major challenges** that have came up with respect to risk allocation. On E18 Muurla-Lohja, the private sector was allocated **the responsibility for meeting specific outputs standards for traffic control and tunnel safety.** This turned out to be very challenging leading to a slight delay in the completion of the project. On Kokkola-Ylivieska, **the bidders were asked to take the long-term responsibility for the existing infrastructure condition of which was unknown.** The project was cancelled as a PPP due to the increased costs resulting from the risk transfer ■ The European project financing market has an acknowledged **bankable risk allocation for PPP projects which changes slightly over time depending on market conditions**. **The contract negotiations can be streamlined if this bankable risk allocation is incorporated into the procurement and contractual documentation from the outset.** The client has found it challenging to identify the appropriate level of risk transfer due to the absence of common European financing terms ■ The value for money of using the established risk allocation has surfaced during the bidding and negotiation phase. In the United Kingdom, **PF2 is a new variation of the PPP model aiming at a more efficient risk allocation between the client and the private sector.** As experiences of PF2 accumulate, the lessons learned should also be utilised for the benefit of the Finnish PPP model
Payment mechanism	■ The payment mechanism on Highway 4 Järvenpää-Lahti was s **simple shadow toll** mechanism. The payment mechanism on E18 Muurla-Lohja is **availability based with multiple dimensions.** The availability payment mechanism was simplified for E18 Koskenkylä-Kotka. **However, future scope for simplification can still be indentified. A possible option is to make the trigger for availability binary by road segment and utilise the widely used payment mechanisms for regional road maintenance contracts as a parallel mechanism**

Projects

Highway 4 Järvenpää-Lahti

Highway 4 Järvenpää-Lahti was the first Finnish infrastructure project procured using the PPP model. The PPP contract was signed in March 1997

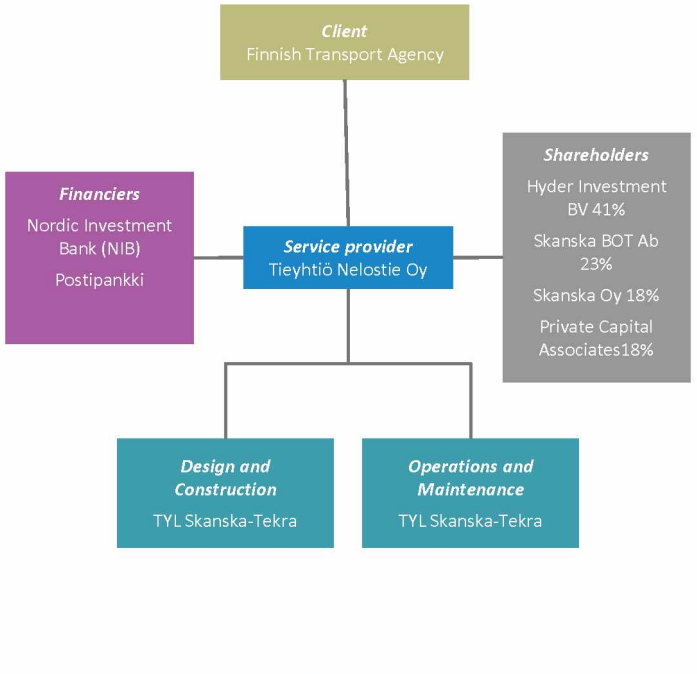
The total value of the PPP contract was approximately 240 MEUR. The capital cost was approximately 84 MEUR

The PPP contract expired in August 2012 and the road returned to the Finnish Transport Agency

The project

- Highway 4 Järvenpää-Lahti was the first Finnish infrastructure project procured using the PPP model
- The PPP contract was for 15 years, including a 2,5-year construction period and a 13-year operational period
- The first section of the road was opened for the public in November 1998 and the reminder in September 1999. The PPP contract expired in August 2012 and the road returned to the Finnish Transport Agency
- The project included 70 km of 4-lane motorway utilising the existing 2-lane road. The project also included 88 new bridges
- In addition to the winning consortium, the following consortia participated in the bidding competition: Vianova Oy (YIT-Yhtymä Oy, Neste Oy ja Rakennus Oy Lemminkäinen), Group VT4 (Dragados SA, SRV-Viitoset, Niska & Nyyssönen Oy, Karjalan Murske Oy, Insinööritoimisto Seppo Rantala Oy and Sata-Asfaltti Oy) , Bouygues and Suomen Laatutie Oy (NCC Oy, NCC-Puolimatka Oy and Laing Construction plc)

Organization



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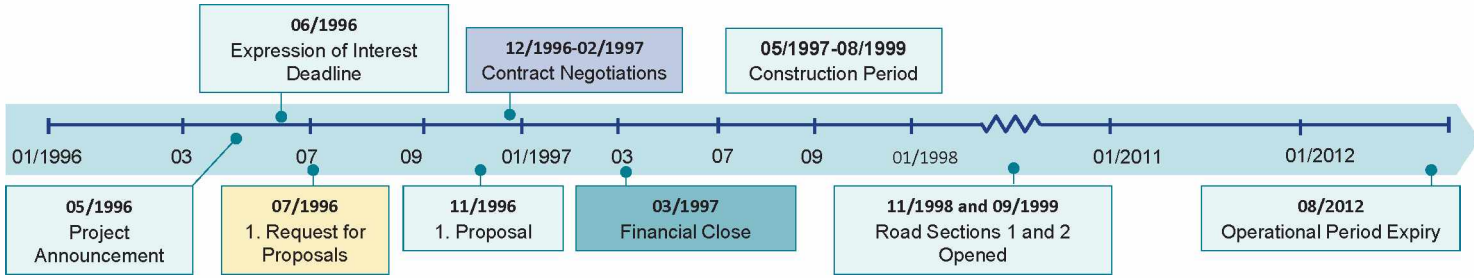


E18 Muurla-Lohja

E18 Muurla-Lohja project agreement was signed in October 2005

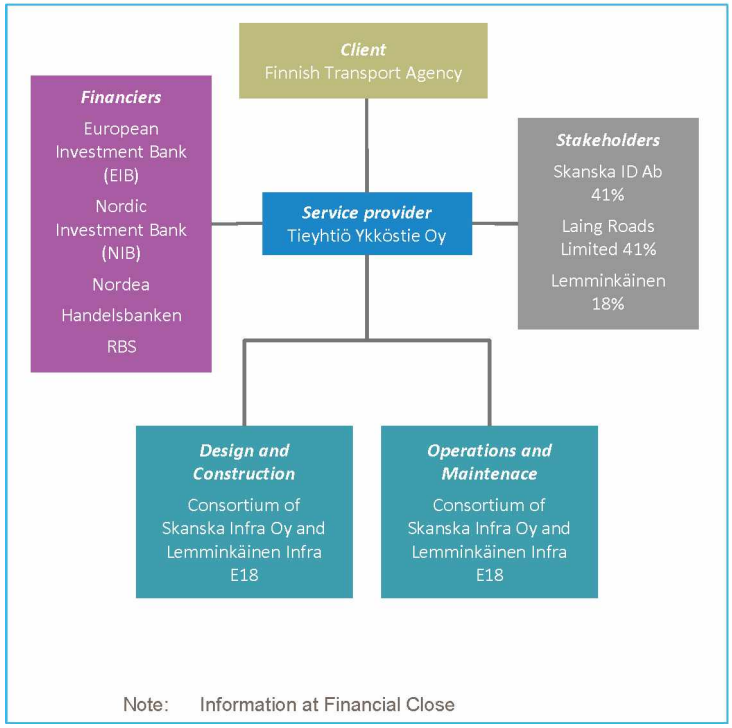
The total value of the PPP project will be approximately 700 MEUR and capital cost will be approximately 300 MEUR

The PPP contract will expire in 2029

The project

- E18 Muurla-Lohja motorway improves the efficiency of East-West traffic in Southern Finland
- The length of the PPP contract is 24 years, including a construction period of over three years and a maintenance period of 21 years
- The first section of the motorway was opened to public in November 2008 and the remainder in January 2009
- The project includes 51.3 km of motorway, 12.5 km of other public roads and 27.1 km of private roads. The motorway has seven tunnels with total length of 5.2 km and eight interchanges
- In addition to the winning consortium, the following consortia participated in the bidding competition: Bouygues & Kesälahden Maansiirto Oy, Cintra & SRV Oyj, Tieliikelaitos & YIT Rakennus Oy sekä Vinci Concessions

Organization



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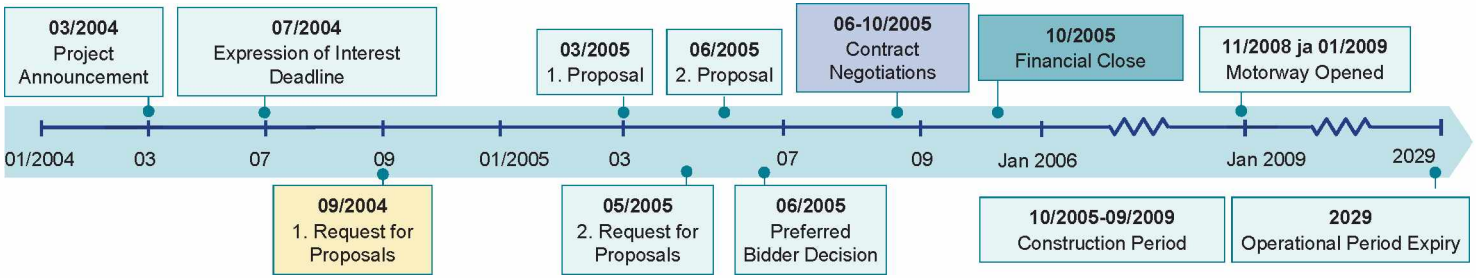


Kokkola-Ylivieska

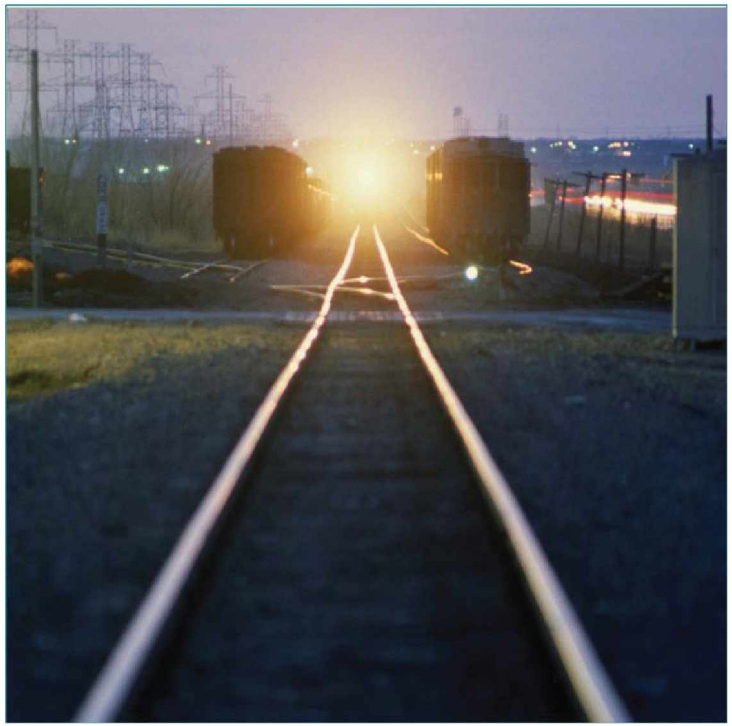
Kokkola-Ylivieska was to be the first Finnish railway project to be implemented using the PPP model

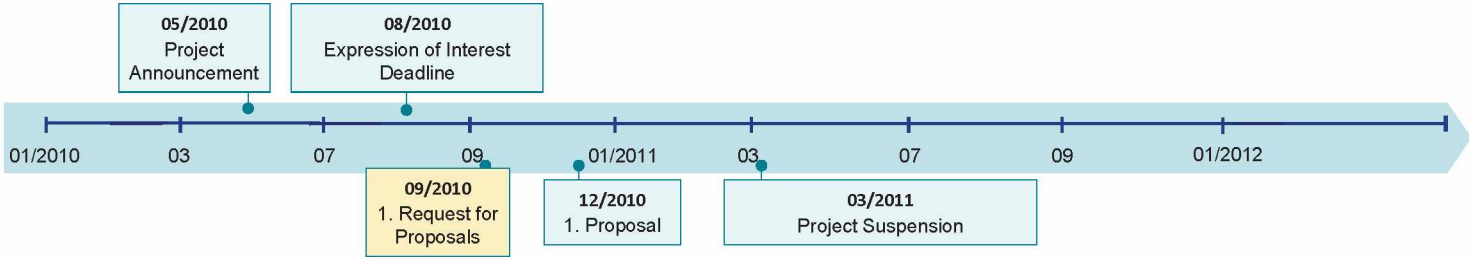
At prefeasibility, estimated total costs were at 650 MEUR and capital cost at 263 MEUR

The PPP procurement was suspended in the first half of 2011

The project

- Kokkola-Ylivieska railway section is 79 km in length and located between Seinäjoki and Oulu. The aim of the PPP was to upgrade a single track railway line into a double track
- At prefeasibility in 2009, estimated total costs were at 650 MEUR and capital cost at 263 MEUR
- The contract period was estimated at 30 years with a 3-year construction period
- The procurement of the PPP project was suspended due to higher then expected bid prices. The procurement continues as three Design & Build contracts with budget based financing
- Two consortia were bidding for the PPP project: Destia Oy and YIT Rakennus Oy as well as Lemminkäinen Infra Oy and VR Track Oy





E18 Koskenkylä-Kotka

E18 Koskenkylä-Kotka PPP project contract was signed in December 2011

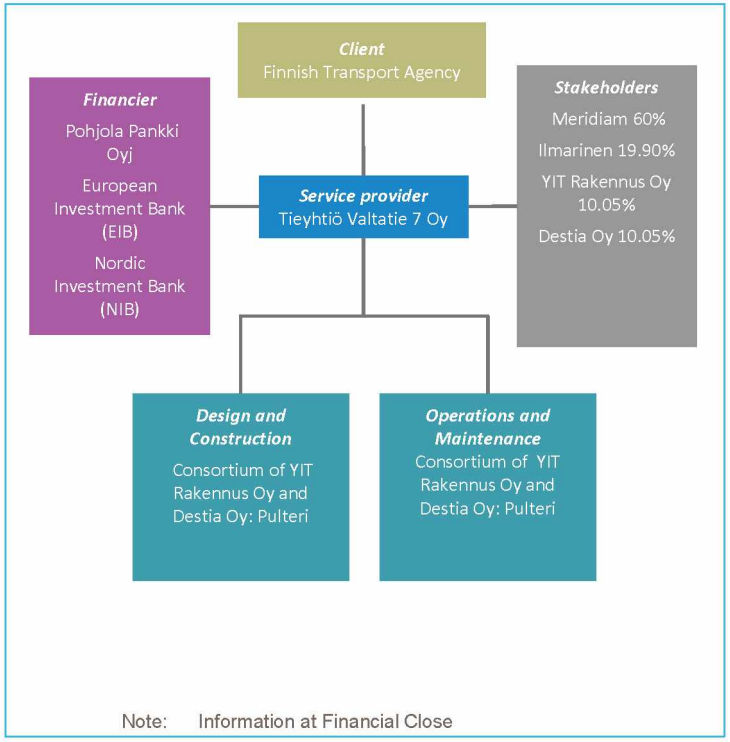
The total value of the service agreement is approximately 623 MEUR and capital cost approximately 285 MEUR

The project agreement will expire in 2026

The project

- E18 Koskenkylä-Kotka is part of the international E18 highway connecting the cities, airports and ports in Southern Finland
- The total length of the PPP contact is 15 years with a 3-year construction period and 12-year maintenance period
- The project includes 53 km of motorway, including 36 km new motorway and 17 km existing road to be upgraded. There are 56 bridge locations with a total of 63 bridges
- In addition to the winning consortium, the following consortia participated in the bidding competition: Strabag, Vinci Concessions and Lemminkäinen Infra Oy (last two did not submit a bid)

Organization



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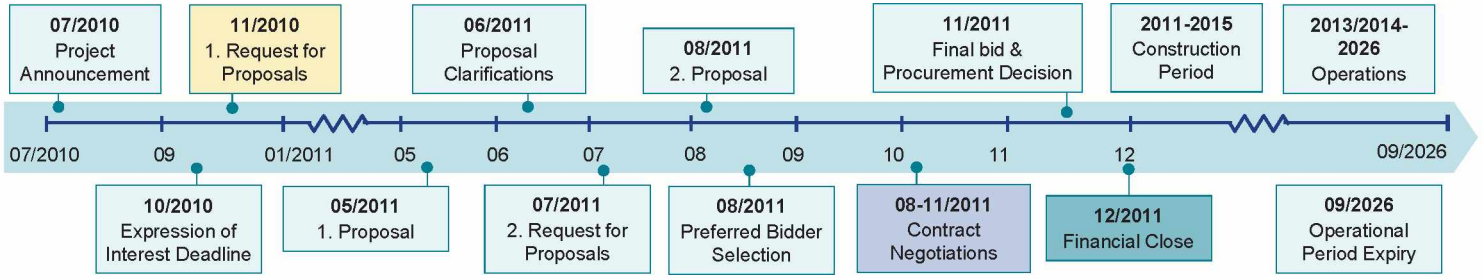

PPP Review

Procurement documentation

The output specification has a key role in realising the benefits of PPP

The client should be better able to anticipate the requirements of the project financing banks in the procurement and contractual documentation

The procurement of PPP projects calls for improved coordination in the future

Observations

- The procurement timelines for all PPP projects have been known well in advance and international marketing for the projects has been undertaken. There has been adequate time for consortia formation
- The procurement documentation has been in Finnish and as well in English. The negotiations have been in English when necessary
- On E18 Muurla-Lohja, the output specification for traffic control and safety of the tunnels could not be unambiguously interpreted by the contracting parties. This led to increased use of input specification on E18 Koskenkylä-Kotka
- The opportunities for innovation within the PPP model have been retained within the boundaries set by planning decisions as well as optimisation of earth-moving and phasing of superstructure construction
- There were five bids for VT4 Järvenpää-Lahti, three bids for E18 Muurla-Lohja, two bids for Kokkola-Ylivieska project and two bids for E18 Koskenkylä-Kotka
- The procurement timelines for Kokkola-Ylivieska and E18 Koskenkylä-Kotka were overlapping resulting in the small number of bids
- Even though there were only two bids for E18 Koskenkylä-Kotka, it was felt that there was genuine competition due to the significant bid costs and both bidders have been intensely involved in the competition

Development proposals

- The output specification should be clear without defining specific technical solutions and working practice (if the risk allocation does not demand otherwise). It is important to spend time on the output specification during the negotiations. A well defined output specification gives the bidders more freedom for innovations and opportunities to add value to the Finnish Transport Agency. However, the client must consider the use of technical specifications in circumstances where it wants to specify the solution in order to manage risk
- Exchanging experiences on the output specification with European colleagues (for example, the Netherlands, where the PPP model is in active use) could sharpen the practices in Finland and abroad. The Finnish practices are in line with the Nordic specifications
- Making the English language the prevailing language and making it possible to prepare the bids documentation in the English language could increase international competition for the projects, as international bidders could better utilise their expertise from elsewhere. As Finnish companies often lead project implementation, using English as the prevailing language could cause some practical challenges
- After the Finnish Transport Agency was established, PPP projects have been coordinated centrally. It is very unlikely that two PPP projects would be procured at the same time in the future and this should be avoided

Procurement documentation

In order to streamline the procurement process, the client could consider fixing the affordability envelope and output specification up front and using contract (construction and operation) duration as a bid evaluation criteria

Observations

- The bid evaluation criteria on the PPP projects have been very similar with the main emphasis on price
- The bid evaluation criteria:
  - VT4 Järvenpää-Lahti: quality 10% and price 90%
  - E18 Muurla-Lohja: quality 10% and price 90%
  - Kokkola-Ylivieska: quality 20% and price 80%
  - E18 Koskenkylä-Kotka: quality 20% and price 80%
- Evaluation of the bids for E18 Muurla-Lohja awarded bonuses for faster completion. This was taken into account in the price evaluation
- The evaluation of the quality typically consider project organization, technical solutions, financial solutions, quality management, risk management and safety
- Communication and stakeholder management were also evaluated on E18 Koskenkylä-Kotka
- The affordability envelope for all PPP projects has been publicly known and remaining within the given framework has become a key issue on all projects

Development proposals

- The budgets for all four PPP projects have been fixed and publicly known before the procurement processes have started. The bidding competition has in addition taken place in a setting where the output specification (quality) and contract duration have been fixed. This has resulted in affordability challenges. In order to streamline the procurement process, the client could consider fixing the affordability envelope and output specification up front and using contract (construction and operation) duration as a bid evaluation criteria. The use of output specification is seen to call for a at least a 15-year operational period

Bidding and negotiation phase

The client has been extremely successful in its systematic approach to organising the bidding competition and concluding the negotiations. The same approach should be applied on future projects

The client should take the bidders' critical requirements into account whilst more than one bidder is involved in the procurement process

The client has an opportunity to make use of the best practices of alliancing bringing the Finnish PPP negotiation practices closer to those used internationally

Observations

- The bidders have proposed changes in the negotiation phase but the client has not taken these into consideration in refining the procurement and contractual documentation. Amendments to the technical requirements have typically been taken more into account than amendments to the commercial and legal requirements
- Some of the proposed commercial and legal changes have been requirements of the financing banks and they have been only dealt with once the banks have entered the negotiations after the preferred bidder has been selected. This has happened both on E18 Muurla-Lohja and E18 Koskenkylä-Kotka
- The preferred bidder negotiations have been approximately four months on both E18 Muurla-Lohja and E18 Koskenkylä-Kotka. The timetable has been perceived as challenging and it is felt that some of the issues could have been dealt with at an earlier stage of the procurement process
- A timeline of slightly over three months for preferred bidder negotiations is short in comparison to international benchmarks and the Finnish Transport Agency has obtained positive feedback for its ability to conclude procurements as planned

Development proposals

- In order to take advantage of competitive tension the client should take the bidders' critical requirements into account whilst more than one bidder is involved in the procurement process
- Finnish alliance projects have found a method where the client and the bidder strive together to solve problems effectively. The approach could be utilised in future PPP projects as well, especially concerning commercial and legal negotiations. This requires further development work being undertaken as a separate project

Construction phase

The construction phase on both Highway 4 Järvenpää-Lahti and E18 Muurla-Lohja projects is deemed to have been at least a year shorter than what the client had originally anticipated with the PPP model

E18 Koskenkylä-Kotka project's private sector partner has obtained positive feedback on its increased openness towards the client

A number of challenges were encountered during the construction phase of E18 Muurla-Lohja. These led to a slight delay in the completion of the project and partially damaging the relationship between the parties

Observations

- The construction phase on Highway 4 Järvenpää-Lahti was a success due to favourable circumstances, efficient organisation and good collaboration. The project is widely seen as one of the success stories in Finnish infrastructure construction
- The construction phase on both Highway 4 Järvenpää-Lahti and E18 Muurla-Lohja projects is deemed to have been at least a year shorter than what the client had originally anticipated with the PPP model
- The private sector bid on E18 Muurla-Lohja was very tight in terms of margins. This created financial pressures in the construction phase, especially when the cost inflation risk was with the bidder
- The first half of the E18 Muurla-Lohja was opened to traffic two months behind schedule due to challenges with tunnel safety systems. Depending on the point of view, the specification of the safety system was ambiguous or the challenges in its implementation were underestimated. The challenges with the traffic control and tunnel safety systems damaged the working relationships on the project
- Thus far the experiences of the E18 Koskenkylä-Kotka construction phase have been positive. The project has strived for increased openness between the client and the private sector
- E18 Muurla-Lohja was technically more challenging than Highway 4 Järvenpää-Lahti and E18 Koskenkylä-Kotka with numerous tunnels in a terrain with steep rocks
- Despite the setbacks, E18 Muurla-Lohja was constructed under the estimated four years timeline by more than a year

Development proposals

- The key components of success in the construction phase are functioning collaboration, open communication and joint problem-solving in challenging situations. These should be valued in future PPP projects as well as in all major infrastructure projects

Operational phase

Highway 4 Järvenpää-Lahti is considered to be a success story. The active role the PPP company has played in collaborating with the local authorities to revitalise the local economy was highlighted by the interviewees

In the E18 Muurla-Lohja the client and the private sector partner have prepared documentation on the interpretation of the payment mechanism. These documents should be used on future PPP projects in seeking to simplify the payment mechanism

Observations

- Two of the projects being evaluated have reached operational phase: Highway 4 Järvenpää-Lahti and E18 Muurla-Lohja
- The operational phase on Highway 4 Järvenpää-Lahti was a success. The payment deductions made were due to exceeding time allocation for traffic stops during rock blasting construction and exceeding specified salt usage levels in winter maintenance during challenging conditions
- Highway 4 Järvenpää-Lahti experienced traffic growth. Thus, the PPP company obtained more revenue than anticipated for some of the operational period. Some of this unanticipated cashflow was used to cover the costs of additional road maintenance due to the increased traffic
- Highway 4 Järvenpää-Lahti project company played an active role in collaborating with the local authorities to revitalise the local economy
- The requirements of E18 Muurla-Lohja were specified primarily as outputs linked to the payment mechanism. This has caused some interpretation challenges. The client and the private sector partner have prepared documentation on the interpretation of the payment mechanism. The client is of the opinion that at the moment the service provision is functioning well

Development proposals

- The client and the private sector partner have prepared documentation, for example, on the interpretation of the payment mechanism. Such documents should be utilised to the fullest on future PPP projects

Hand-back

Highway 4 Järvenpää–Lahti hand-back was a success

The guidance drawn up during the hand-back process should be used on up-coming projects

A detailed ex-post evaluation on the hand-back should be undertaken and information on international comparisons on similar hand-backs obtained

Observations

- Only Highway 4 Järvenpää-Lahti has reached hand-back
- The hand-back of Highway 4 Järvenpää-Lahti started three years before the contract was due to expire
- The process and related reviews and meetings were agreed at the beginning of the hand-back process. A clear guidance of the hand-back process was drawn up
  - Repairs to the drainage systems, such as the concrete gutters, as well as clearance of trees were undertaken as a result of the hand-back monitoring. Large rocks were also removed from the slopes to facilitate grass care
  - At the time of the hand-back, the road fulfilled all requirements and the project company had rectified all highlighted issues promptly

Development proposals

- The guidance drawn up during the hand-back process should be used on up-coming projects. If possible, this documentation should be included in future PPP procurement documentation
- A detailed ex-post evaluation on the hand-back should be undertaken and information on international comparisons on similar hand-backs obtained

Financing solution

Financing solution

The financing solution in PPP is a result of the project's risk allocation and the prevailing condition in the financial markets. E18 Muurla-Lohja has been financed in a situation where the financial markets were very favourable whereas when financing E18 Koskenkylä-Kotka the market was more challenging

Highway 4 Järvenpää-Lahti	
Debt and equity	96 MEUR
Debt provider and share	
Nordic Investmend Bank (NIB)	50 %
Postipankki	50 %
Maturity	14.5 years
Equity share*	
Hyder Investment BV	28.50 %
Skanska BOT Ab	27.20 %
Skanska Oy	14.30 %
Private Capital Associates	0.01 %
Teollisuus-Vakuutus	14.30 %
Eläke-Varma	14.30 %
Espoon Sähkö	1.39 %

E18 Muurla-Lohja	
Debt and equity	335 MEUR
Debt provider and share	
European Investment Bank (EIB)	50.0 %
Nordic Investment Bank (NIB)	25.0 %
Commercial banks (Nordea, RBS, HB)	25.0 %
Maturity	22-23 years
Equity share *	
Skanska ID Ab	41.0 %
Laing Roads Limited	41.0 %
Lemminkäinen	18.0 %

E18 Koskenkylä-Kotka	
Debt and equity	337 MEUR
Debt provider and share	
European Investment Bank (EIB)	50 %
Nordic Investment Bank (NIB)	34 %
Pohjola Pankki	16 %
Maturity	14 years
Equity share*	
Meridiam	60 %
Ilmarinen	19.90 %
YIT Rakennus Oy	10.05 %
Destia Oy	10.05 %

Highway 4 Lahti-Järvenpää was procured at a time when the infrastructure financing market was still developing. E18 Muurla-Lohja was financed when the European infrastructure financing market was peaking and E18 Koskenkylä-Kotka at a time when the market was recovering from the economic crisis of the late 2000s. These time-specific circumstances are reflected in the capital structure, maturity of the financing and naturally in the terms and price of the financing of each project.

* In addition to share capital, equity includes the subordinated loans that the shareholders have given to the project company in respect to the Highway 4 Järvenpää-Lahti project also the junior loans subordinated to bank loans (Teollisuus-Vakuutus, Eläke-Varma and Espoon Sähkö)

Note: Information at Financial Close

Financing solution

The higher cost of project financing compared to public sector financing was a reoccurring theme in the interviews. The road projects in Ireland, France and Denmark use structural solutions to moderate the cost of finance

Observations

- The higher cost of project financing compared to public sector financing was a reoccurring theme in the interviews. Solutions to reduce the cost of finance are needed

Development proposals

- The potential avenues for reducing the cost of financing whilst retaining most of the benefits arising from efficient management of risk under PPP include
  - The Irish model: the client funds approximately half of the project's capital costs directly during the construction phase as private finance is used of the other half. As a result, more affordable public sector financing and the PPP risk allocation are both being used
  - The French model: The client guarantees a proportion of the availability payment thus leaving approximately 70 percent of it protected. This allows the protected part of the payment to be financed at a cost close to public sector borrowing
  - The Danish model: the client refinances the project using public sector funds post construction. This brings more affordable financing to the project at the time most of the project risks have been passed in time
- The PPP models above have been evaluated in connection with previous PPP projects and proven not to be adaptable to the Finnish context. However, the evaluation of the models should be continued
- The market is continuously seeking solutions to improve the availability of the financing and to moderate costs. The private sector solutions include, for example, Hadrian's Wall Capital (investor's mezzanine financing) and Pebble (bank's mezzanine financing) products. The solution developed by the public sector is the European Investment Bank's Project Bond (mezzanine financing and guarantees for infrastructure projects). The development of these products should be closely monitored in case they are needed in upcoming PPP projects in Finland

Note: www.hadrianswallcapital.com, www.ipfa.org, www.allenovery.com.

Risk allocation

Risk allocation

As a rule, risk should be borne by the party best placed to influence the realisation of the risk

The European project financing market has an acknowledged bankable risk allocation for PPP projects which changes slightly over time depending on market conditions

The contract negotiations can be streamlined if this bankable risk allocation is incorporated into the procurement and contractual documentation from the outset

Observations

- Highway 4 Järvenpää – Lahti included traffic volume risk. However, the risk was contained from the client's and service provider's point of view within specific thresholds
- On E18 Muurla-Lohja, the risk allocation involved the private sector carrying risks it was partly unable to control. The cost inflation risk is an example of such risk materialising during the project
- As a departure from earlier projects, on E18 Koskenkylä-Kotka some inflation risk was retained by the client. This was seen a pragmatic solution given the market conditions at the time
- On E18 Muurla-Lohja, the private sector responsibility for the traffic control and tunnel safety systems turned out to be challenging to manage than expected and as a result the completion of the project was delayed
- On E18 Koskenkylä-Kotka, the client has used detailed technical specifications and retained more risk, for example on the traffic control and tunnel safety systems than on E18 Muurla-Lohja
- On Kokkola-Ylivieska, the bidders were asked to take the long-term responsibility for the existing infrastructure, including meeting performance standards and obtaining permits for implementation. In addition, the private sector should have taken responsibility for almost all third party issues and vandalism. These amongst other things led to the increased project costs and a change in the procurement model

Development proposals

- Risks should be allocated to the party best positioned to manage them
- With regards to technical risks, the risk allocation should not initially be overaggressive. The client has to specify the scope of the procurement but should not take a role in managing the project delivery
- The risk allocation should be highlighted more in the procurement phase. The European project financing market has an acknowledged bankable risk allocation for PPP projects which changes slightly over time depending on market conditions. The contract negotiations can be streamlined if this bankable risk allocation is incorporated into the procurement and contractual documentation from the outset
- The value for money of using the established risk allocation has surfaced during the bidding and negotiation phase. In the United Kingdom, PF2 is a new variation of the PPP model aiming at a more efficient risk allocation between the client and the private sector. As experiences of PF2 accumulate, the lessons learned should also be utilised for the benefit of the Finnish PPP model

Payment mechanism

Payment mechanism

Two types of payment mechanisms have been in use in the PPP projects: shadow toll and availability payment mechanism

Availability based payment mechanisms have been found complex. There is a demand for a simpler payment mechanism

The payment mechanism could be simplified by making availability binary and by using payment mechanisms for regional road maintenance contracts as a parallel mechanism

Observations

- Highway 4 Järvenpää-Lahti used a shadow toll payment mechanism where the payment was based on vehicle volumes on the road segments
- E18 Muurla-Lohja and E18 Koskenkylä-Kotka used availability based payment mechanism where the total payment is based on availability and performance. The net payment is calculated by taking out any deductions
- Availability deductions are due if the road or a part of it is deemed not to be in use or if the road has obstacles or reduced speed limit. The amount of the availability deductions is influenced by the traffic flow on the specific road segment, the extent of the availability and the timing (week day and time) of availability
- The service level is measured by the quality of operations and maintenance. Deductions are imposed for shortfalls in quality
- In addition, the net payment amount is influenced by opening dates for road segments and on E18 Muurla-Lohja the safety levels achieved
- Kokkola-Ylivieska had an availability based payment mechanism where unavailability was triggered when maximum speed or axel load were reduced. The private sector view the unavailability deductions as unreasonable or beyond its control
- Kokkola-Ylivieska and E18 Koskenkylä-Kotka included fixed operations and maintenance payments during the construction period. On Highway 4 Järvenpää-Lahti these were linked to traffic volumes

Observations

- The private sector feels that on E18 Muurla-Lohja the payment mechanism includes indicators that do not unambiguously contribute to the efficient operation of the road. For example, a bonus is paid if there are less traffic accidents than on other similar road. A large number of indicators is used and the payment mechanism is multidimensional. The client and the private sector have drawn up guidance on interpretation
- The E18 Muurla-Lohja payment mechanism was simplified for the Koskenkylä-Kotka project. The number of indicators were reduced and the safety bonus was removed. The payment mechanism remains to be seen as multidimensional. However, it has yet to be used in practice

Development proposals

- Availability based payment mechanisms have been found multidimensional. There is a demand for a simpler and clearer payment mechanism
- The payment mechanism could be simplified by dividing the highway to segments (for excample 20 segments) and by making the availability binary (in use or not in use). Unavailability could be triggered by a number of events
- In addition, the widely used payment mechanism for regional road maintenance contracts could be utilised as a paraller mechanism for operations and maintenence as was done on E18 Muurla-Lohja and E18 Koskenkylä-Kotka

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